

Remarks

Currently pending are claims 14, 18-19 22-26 and 28. Claim 14 has been amended to include the limitations of claims 15, 16 and 17. Further support for the amendments to claim 14 can be found at, for example: page 4, ll. 18-21; page 5, ll. 5-10; page 5, l. 30 to page 6, l.1; and page 6, ll. 26-30. No new matter has been added.

35 U.S.C. § 103

The Examiner has rejected claims 14 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Matsumoto et al. (EP 0662 380). Applicant traverses this rejection for the following reasons.

Applicant's presently claimed invention is generally directed to a method of producing a model or tool including: adhering an assembly of substrates with layers of adhesive paste; machining the assembly of substrates; covering the outer surface of the machined assembly of substrates with a continuous layer of curable paste which is formed by machine mixing at least (1) an epoxy resin with (2) a thixotropic agent and (3) a hardener system comprising (i) at least one polyethyleneimine (ii) at least one other amine having at least two amino hydrogen groups and (iii) at least one other epoxy curative having latent reactivity; curing the curable paste and adhesive paste at room temperature; machining the assembly to the final structure of the model or tool according to a computer design; and post-curing the curable paste and adhesive paste at temperature of at least 130° C to yield a heat deflection temperature over 140° C.

In comparison, Matsumoto et al.'s method includes the steps of stacking model blocks and bonding them together using a heat-resistant adhesive; machining the entire

surface of the resultant block stack; and impregnating the machined block stack with a hardening resin and curing the resin.

Thus, Applicant's claimed method is clearly distinguished from Matsumoto et al.'s method. In particular, Matsumoto et al. teach a method using a single stage cure whereas Applicant's method utilizes a two-stage cure in which curable paste and adhesive paste are applied to the assembly of substrates and first cured at room temperature, and after machining the assembly to the final structure, post-cured at a higher temperature of at least 130° C. This two-stage cure enables control of the paste's exotherm which provides higher dimensional accuracy and stability in the final model or tool through reduced warping and shrinkage. This is demonstrated in examples 3 and 4 of the present application where the use of a two-stage cure reduced the paste's exotherm to provide a final structure having no measurable shrinkage. Furthermore, because the applied paste is in a semi-cured state after the first stage cure, machining the assembly of substrates to the final structure is much more easily performed than if the applied paste was fully cured. Finally, curing the paste at room temperature and then post-curing at a higher temperature provides a final structure having improved high temperature resistance. Such a two-stage cure and its corresponding results are neither suggested nor easily predicted by the method taught in Matsumoto et al. and therefore claim 14 is not rendered obvious by Matsumoto et al.

The Examiner further rejected dependent claims 15-21 and independent claim 27 as being obvious over Matsumoto et al. and further in view of Hayes et al. (US 6,077,8860) and/or Winter (US 3,861,936) and/or Mariaggi et al. (US 5,817,737) and/or Young (US 3,652,486). For the reasons set forth above, since claim 14 is not obvious,

remaining dependent claims 18 and 19 are also not obvious. Finally, claim 27 has been cancelled rendering the rejection of this claim moot.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully submits that the application is now in condition for allowance, and respectfully requests issuance of a Notice of Allowance directed towards all of the pending claims.

Should any fee be due in connection with the filing of this document, the Commissioner for Patents is hereby authorized to deduct said fee from Huntsman Corporation Deposit Account No. 08-3442.

Respectfully Submitted,



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